CITY OF REDMOND

TECHNICAL SPECIFICATIONS
FOR
12 YARD POSITIVE DISPLACEMENT SEWER CLEANER

GENERAL

The machine shall be used for removing sand, stones, bottles, cans, grease sludge, and other debris from sanitary sewer and/or storm drain lines by the flushing action of high pressure water. The unit shall include a positive displacement (vacuum) blower and a hydraulically driven high-pressure water pump. The system shall be equipped with a self-contained water supply as the water source for high-pressure pump. The system shall be capable of operating both vacuum and rodder simultaneously at rated operating pressure.

DEBRIS BODY	**YES**	**NO**
The debris storage body shall be constructed of a minimum 3/16" Ex-Ten corrosion and abrasion resistant steel with a minimum yield point of 50,000 PSI and a minimum tensile strength of 70,000 PSI.	___	___
The body shall have a full size rear door that is hinged at the top and is equipped with a replaceable neoprene type seal to prevent leakage.	___	___
The body shall be supplied with a load level indicator to show when the body is loaded to capacity. The rear door shall be equipped with a body drain hose, which allows the operator to drain off excess liquids while retaining solids.	___	___
Debris body shall be dumped by raising the debris body to 50° by means of a forward mounted, double acting hydraulic cylinder and shall provide 66” of dump clearance. Shall not require a separate hydraulic lift to achieve dump clearance.	___	___
The debris body shall be mounted on an independent frame that is separate from the chassis frame. It shall be mounted via a 3-point mounting system to allow flexing to occur without causing damage.	___	___
To achieve the best possible material separation and minimize material being discharged into the atmosphere, the air conveyance system shall draw air from two separate ports in the debris body.	___	___
Dump controls and accessory controls shall be provided at a central curbside		

location, directly behind cab of the truck. ___ ___

The body shall be have a minimum usable liquid capacity of 12 cubic yards or 2500 volumetric gallons. ___ ___

A flat style, top-hinged, rear door with four (4) individual rod and receiver block type sequential door locking system, cam operated by a hydraulic cylinder shall be supplied. Rear door open/close cylinders shall be mounted on top of body. The system shall be capable of hydraulic opening up to 50° from a fully closed position. Shall include a rear door safety prop and curbside controls. ___ ___

A splash shield shall be mounted around the outer circumference of the rear door to direct liquid or debris away from the chassis. The shield shall be constructed of ExTen steel. It shall be bolted to the outside diameter on the rear flange of the debris body and located from the 3 to 9 o'clock position. ___ ___

Dual 10" stainless steel ball floats, cage and screen shall be located in each outlet to the vacuum source to automatically stop the airflow to the body shall be supplied. The float balls shall activate when a debris body full load condition exists. ___ ___

A stainless steel micro-strainer shall be supplied. Strainer shall be located prior to the blower inlet. The stainless steel micro-strainer shall be contained within its own housing. The strainer shall filter air as it is drawn into the blower. Housing shall have a removable top for screen removal during cleanup and shall come with drain port in bottom. ___ ___

A flush out nozzle with eight (8) tungsten curbside tipped nozzles shall be mounted at the front interior of debris body, shall be sized to utilize the unit's water pump system at full capacity to scour the debris body. The control valve shall be located at the rear curbside of the machine. The debris body shall be ported to accommodate a trash pump. A rear mounted debris body chute shall be mounted to cover the tag axle from debris discharge. ___ ___

Two (2) 6" I.D. butterfly valves located on rear door for water decanting. A single filtration screen provided to prevent large debris from entering the drainpipes. Includes 10' lay flat drain hose with storage supplied for each valve. Decant valves shall incorporate at back flush quick connect. ___ ___

A debris inner connect option shall be included. Shall be equipped with a separate hydrant fill, air gap, hydrant hose and water filter strainer system. ___ ___

A tapered cone (cyclone) centrifugal separator shall be mounted in line between the debris body and the vacuum system to aid in the process of dust separation and to prevent ingestion of 50 micron or larger particulate into vacuum pump/compressor. A dust box with an access door for clean out of the separator shall be provided. ___ ___

Spring loaded pipe storage racks shall be located on the curbside and street side of the debris body above the rear water tank plus stationary rack on rear door. The pipe racks shall be constructed of structural steel tubing and shall be spring assisted in the down and up positions for easy operation. The rack shall be capable of storing three (3) 8" diameter pipe up to 7' long. ___ ___

Unit lube manifolds shall be located at curbside of unit. The manifold shall allow ground level greasing of boom lift and swing cylinders, float level indicator, top rear door hinges and debris body hoist cylinder pins. ___ ___

An electrically activated, air operated, 4" butterfly valve shall be located prior to the blower inlet. This relief valve shall be manually activated at the front workstation with indicator light or the pendant control. This allows the venting of the debris tank to atmosphere and relieves vacuum at the debris intake hose. ___ ___

A hinged deflector plate mounted to the upper inside of the debris body to help with material flow and dumping process shall be supplied. ___ ___

WATER TANKS **YES** **NO**

Multiple aluminum, cylindrical water tanks shall be located at the chassis frame level and over the rear tandem axles. Total capacity shall be 1300 gallons. ___ ___

The 1300-gallon capacity shall be achieved via multiple cylindrical cells. ___ ___

The aluminum water cells shall not require internal coatings and shall be easily repaired or patched if required. ___ ___

The cells shall be hung via rubber line "j" straps, which allow the cells to be easily removed from the unit if required. ___ ___

The water cells shall be located directly behind the cab of the truck and ending at the very rear of the unit, thus providing the best possible weight distribution. ___ ___

The water tanks shall be adequately vented and connected to provide complete filling. A minimum 6" and 4" connection between tanks is provided. ___ ___

The water tanks shall be totally separate from the debris tanks and provide no structural support. ___ ___

All water cells shall be positioned at or below the frame of the unit, thus providing the best possible and lowest available center of gravity. ___ ___

The water tanks shall come equipped with a 2" Y-patterned filter with an 80-mesh stainless steel strainer to filter the water before it enters the water tank. ___ ___

An air gap in water fill system shall be supplied. Shall include y-strainer, 2.5" x 25' fill hose, cam lock style fittings & hose storage. An additional 50’ of hydrant fill hose, cam lock style fitting and hose storage box shall be included. ___ ___

A low water electrically activated float device shall be located in the water tank. When low water level condition exists, the float shall signal a warning light and an audible alarm located at operator station. A manual by-pass switch, located at the operator station, shall be supplied to de-activate the system. ___ ___

An air purge system shall be supplied. The system shall aid in the purging of water lines and water pump for cold weather storage. This system shall utilize the chassis air compressor to fill independent air reservoirs. The air purge shall come complete with plumbing, valves and air pressure gauge. Pressure protection valves shall isolate the holding tank and the chassis compressor. ___ ___

A manual 3" bronze gate type valve shall be located at the water pump inlet, shall be used when a means to isolate the water pump from the water tank outlet is required.	___	___
Chassis module side skirts on the unit shall be supplied.	___	___

VACUUM SYSTEM DRIVE	**YES**	**NO**
Blower shall be driven from the chassis engine via the transmission drive shaft and heavy duty split shaft transfer case direct to the blower with no sheaves or v-belts or hydrostatics to maintain or adjust.	___	___

VACUUM SYSTEM	**YES**	**NO**
A positive displacement rotary type blower Roots Model 824RCS rated at 4500 CFM at 0" HG @ 2200 RPM. It is capable of 3500 CFM @ 18" HG @ 2200 RPM. The system has a removable and cleanable stainless steel filter screen located prior to the blower inlet to restrict ingestion of particulate into the blower. Two vacuum relief valves are supplied. The blower shall include a horizontal mounted, heavy-duty muffler to restrict noise. The chassis engine will drive the positive displacement blower via a heavy-duty split shaft transfer case, directly connected to the blower by a drive shaft. Front mounted blower engagement controls shall be located on the front hose reel.	___	___
Unit shall have the ability to vacuum and jet rod to depths of 75’.	___	___

BOOM	**YES**	**NO**
An 8' telescoping boom shall be supplied. The boom shall extend and retract a minimum of 8' and shall be located at the front workstation in its retracted position. The 8' extension shall provide a minimum of 474 square feet of additional coverage. The boom shall rotate a minimum of 160 degrees and provide 277" minimum reach off the centerline of the unit. The boom shall include a steel, true telescoping suction tube that shall extend and retract without affecting the steel elbow or lower debris hose vertical position.	___	___
Shall be designed for front end operation with hose mounted and stored at front workstation. Front mounted location is desired for ease of positioning vacuum hose as well as minimizing the need for the operator to swing hose into traffic.	___	___
All connections between debris body and vacuum system shall be of the self-adjusting, pressure fitting type.	___	___
The lift and swing movements shall be accomplished by cylinder actuated means. Gear and chain type rotations are not preferred due to maintenance considerations.	___	___
The boom shall be 6-way hydraulically driven up/down/left/right/extend/retract. A		

remote push button control station shall control the boom by cable to the hydraulic power swing/lift/extend cylinders. ___ ___

The boom pendant control shall come equipped with control switches for all directions as well as a safety emergency shutdown button that automatically eliminates power to the boom. ___ ___

A cab protection device, independent of cab that shall protect the cab from the boom shall be provided. ___ ___

All hose and tubes shall be 8" I.D. and shall remain stationary and not raise with the debris body in order to minimize the possibility of running vacuum hose into power lines and low hanging branches. The upper debris tube shall consist of an anchored steel tube for additional life. ___ ___

Pipe extensions shall be included to allow operator to clean to depths of 20'. This shall include a 6'6" catch basin nozzle with a steel reinforced tip. Pipe should include sufficient adjustable, over center, quick clamps to join the aluminum flanged suction pipe. ___ ___

A boom transport cradle shall be supplied. ___ ___

Two (2) joystick controls for the boom functions shall be supplied, one located on each side of the hose reel. ___ ___

A cordless boom remote control shall be supplied. This system shall activate all boom functions and vacuum relief valve. ___ ___

HIGH PRESSURE WATER PUMP

The positive displacement, high-pressure water pump shall be a double acting, single piston pump hydraulically operated direct from a hydraulic pump. Belt drive systems are not acceptable. ___ ___

The water pump shall cycle approximately every 4 1/2 seconds. This pump cycle shall provide an automatic "jack-hammer" action in the hose to assist the nozzle in breaking through obstacles. ___ ___

The water pump location shall provide a flooded inlet to eliminate potential cavitations damage. ___ ___

The water pump shall have a steel protection plate. The cover shall protect the water pump and the inlet/outlet lines from the pump. ___ ___

The high-pressure water pump shall be designed so no damage shall occur if run at normal operating pressure and rpm without water for 30 minutes. A certification by the original water pump manufacturer to operate in such a manner shall be provided. ___ ___

The positive displacement water pump shall have the capability to purge residual water out of the water system by pumping air through the entire water system. Ball valve drains shall be provided in the bottom section of the water pump for flushing the pump and for complete cold weather draining. ___ ___

The water pump shall be capable of maximum water pressure and flow while

achieving maximum vacuum capability. The water pump shall operate independent of the vacuum system. ___ ___

An oil-to-water heat exchanger shall be provided in the water system to cool all hydraulic fluids on the unit. ___ ___

Water pump shall have capability of being engaged/disengaged from driving mechanism at the front control panel by using an on/off switch, thus providing added control and safety. ___ ___

The hydraulic flow to drive the water pump shall be from a hydraulic oil pump driven by the truck engine via a heavy duty air or electric-over-hydraulic shift power-take-off. The water pump shall operate with an oil-to-water ratio of 1 to 1. ___ ___

The power-take-off shall engage the hydraulic pump but not the water pump to eliminate unnecessary high-pressure ball valve by-pass and water pump wear. ___ ___

The rated design capacity of the high-pressure water pump shall be 100 GPM and 2000 PSI. This capacity shall insure long pump life. A certification by the pump manufacturer for continuous duty shall be provided. ___ ___

The hydraulic pump and water pump shall be sized to deliver 80 GPM @ 2500 PSI continuous duty operation. ___ ___

A 3" Y- pattern strainer is installed prior to the water pump suction inlet to serve as an additional filtering device. The Y-filter includes a 3" stainless steel, 80-mesh filter screen. ___ ___

An ASME coded and safety stamped 2 ½ gallon capacity hydro-pneumatic, nitrogen charged bladder type accumulator shall be supplied. It shall have a pre-set operating range of 1400 to 2500 PSI to give continuous smooth pressure at the nozzle. The accumulator system shall have a 1" ball valve shut off to allow water pump to operate either with "jackhammer" action or smooth water flow. ___ ___

A minimum 2500-PSI Hydro Excavation handgun package shall be added to the sewer cleaner for hydro excavation work. The system shall include a spring loaded retractable reel, mounted at curb-side mid-ships of the unit. It shall have a 50' x 3/8" hose assembly with heavy-duty quick connectors. A high-pressure handgun and multiple orifices shall be supplied with package. Controls to vary the flows and pressures shall be located at the front of the vehicle. Twenty feet (20') of additional high pressure pipe extensions shall be included. ___ ___

The jet-rodder water pump shall be equipped with a hydraulic driven system that utilizes a variable displacement piston type hydraulic pump to supply power to the water pump. This system shall allow the operator to vary the flow and pressure of the water pump independently by using a dial control at the front station and changing nozzles. This is not a by-pass system. The variable piston hydraulic pump shall permit the operator to select the appropriate oil flow required to change the water pump output. ___ ___

A 3" drain valve shall be located at the water pump. ___ ___

A water pump hour meter shall be provided. ___ ___

FRONT MOUNTED HOSE REEL

A telescoping/rotating hose reel with a 600' capacity for 1" sewer hose shall be provided. Reel shall hydraulically extend 15” forward, shall rotate 270°, and shall lock every 2°. ___ ___

The hose reel shall be mounted on an independent frame that can be removed from brackets attached permanently to main truck frame members. ___ ___

Hose reel shall be manufactured out of ¼" spun steel for added structural strength. This spun steel shall require no internal or external reinforcements that could damage rodder hose. ___ ___

Hose reel shall be driven via hydraulic motor with a dual sprocket and chain system. ___ ___

Hose reel shall have a 1" rotating swivel joint that is adjustable and has replaceable seals on the inlet line to provide free rotation of hose reel. ___ ___

All operating controls shall be located on the hose reel. The reel shall incorporate a dual full set of operator controls. ___ ___

A mechanical footage counter shall be mounted at the hose reel flange to measure the pay out and rewinding of hose. It shall measure in 1-foot increments to allow the operator a visual means to determine how much sewer hose is in the sewer line. ___ ___

A dual hose manual level wind guide system shall be provided. ___ ___

HIGH PRESSURE SEWER HOSE

600' x 1" Aeroquip plastic type sewer hose shall be supplied. The sewer hose shall be rated at 2500 PSI working pressure with 6250 PSI burst pressure. ___ ___

Two 10’ x 1” “Shark” flexible leader hoses shall be supplied. ___ ___

A flexible hose guide will be provided with a restraining rope for protection of rodder hose and to provide help in locating nozzles in sewer lines. ___ ___

HANDGUN SYSTEM	**YES**	**NO**
A handgun system capable of 20 GPM @ 800 PSI shall be provided. Shall include 50’ of 1/2” hose with quick-disconnect couplers. A spare handgun with 10’ of ½” hose with quick disconnect shall also be included.	___	___
A stainless steel quick disconnect coupling shall be furnished with hose and pistol grip nozzle. The hose shall be capable of delivering water to the area served by the catch basin intake nozzle and to the inside of the debris body.	___	___
Handgun system shall include a connection that allows the operator to deliver water to the area served by pick-up hose and to the inside of the debris body for clean out. The handgun should allow for changing of the flow pattern from a fine mist to a steady stream.	___	___
Stainless Steel quick disconnect couplers shall be supplied at the front and rear	___	___

of the unit.

A spring loaded retractable hand hose reel with 50' hose shall be mounted on the front bumper.	___	___
ELECTRICAL	**YES**	**NO**
The entire electrical system shall be vapor sealed to eliminate moisture damage to NEMA 4 (National Electrical Mfg. Assoc.) standards.	___	___
All electrical connections shall require no exposed wires or terminals.	___	___
All light bulbs shall be shock mounted to eliminate bulb failure.	___	___
All wiring shall be color coded and run in sealed terminal boxes.	___	___
HYDRAULIC SYSTEM	**YES**	**NO**
The hydraulic reservoir shall have a 67-gallon capacity.	___	___
The tank shall be totally modular component and easily removed from its storage area.	___	___
Gate valves shall be installed to permit the servicing of the hydraulic system. A valve shall be located at the hydraulic pump suction line, return line, and oil filter.	___	___
FRONT OPERATING STATIONS AND CONTROLS	**YES**	**NO**
Dual Operator Controls and gauges to include:		
Operation station shall be located at the front of the truck.	___	___
Truck engine throttle and tachometer	___	___
Oil dampened water pressure gauge	___	___
Boom pendant control plug in	___	___
Water pump on/off control	___	___
Water system on/off and flow control	___	___
Blower on/off controls	___	___
Hose reel in/out and speed controls	___	___
Hydraulic oil temp gauge	___	___

MOUNTING	**YES**	**NO**
Unit shall be mounted on approved truck chassis at the factory of the body manufacturer.	___	___

PAINT	**YES**	**NO**
All metal surfaces shall be shot or sand blasted prior to painting.	___	___
All metal surfaces shall be primed prior to painting.	___	___
All hose and fittings, as well as electrical wires and connections, shall not be painted.	___	___
Painting of the module shall be with DuPont Imron polyurethane paint. This paint shall be applied over a sanded primer base. The process shall allow the unit to be primed and air-dried, then sanded and cleaned of all dust. The final coats of finish paint are applied. The process shall be a Low Voc-High Solids OSHA compliant two-part urethane paint. The process prior to painting shall be that all metal is grit blasted to near white finish, phosphorus washed, dried, cleaned of all dust, primer coated, primer is air dried, imperfections are sanded and filled as needed, and then finish paint is applied to a minimum 3 mil thickness. All finish painting shall be done prior to the assembly of the machine.	___	___

LIGHT ACCESSORIES	**YES**	**NO**
Circuit breakers shall be supplied for all electrical circuits.	___	___
A hand held spotlight, one piece molded black neoprene pistol grip type shall be supplied. Shall be 110,000 candlepower, 100-watt/13 volt sealed beam bulb. SVO –25' coiled cord with 12 volt plug in connector, 4.5" diameter and 8.5' long.	___	___
Brackets and wiring for revolving lights shall be provided.	___	___
The two 12 VDC, adjustable shock mounted work lights shall be located on the 70° elbow and shall be wired with a retractable extension cord reel to allow extension of the boom. They shall be turned on/off with a toggle switch mounted on the operator control panel.	___	___
1- TA1664LS Super LED Traffic Advisor, 16 light, 600 series Super LED with control head shall be mounted at the rear of the truck.	___	___
1- TA870L LED Traffic Advisor, 8 light LED Traffic Advisor shall be mounted over the front cab of the truck.	___	___
1- LT2AAAAP, Mini-Liberty LED Lightbar shall be mounted on the cab. Two additional LED modules (SLDAA) shall be installed in the lightbar. (Four front/two rear)		
8- 50A03ZAR, 500 series Super LED TIR6, amber shall be installed on the truck. Four shall be mounted at the rear (two upper, two lower) and two	___	___

shall be mounted on each side of the truck below the tank area.

8- 5BRUSH, 500 series aluminum brush guards shall be used with the six lights listed above.

NOTE: The 500 Series Super LED TIR6 lights shall be synchronized together in a pattern acceptable to the City of Redmond.

CHASSIS ACCESSORIES	**YES**	**NO**
An electronic back-up alarm with "Auto Volume" control 87dba-107dba shall be supplied.	___	___
Two (2) set of tow hooks (2) shall be mounted at the front and rear of the chassis to enable towing or pulling of the machine.	___	___
A 36 X 12 X 12 aluminum toolbox shall be provided.	___	___
A 96 X 30 X 16 behind-the-cab aluminum full width and height toolbox with lockable pull out trays shall be provided.	___	___

ADDITIONAL ACCESSORIES	**YES**	**NO**
Two (2) sets operation, parts, and service manuals for the sewer cleaner shall be supplied.	___	___
An Intec Model CVC460HXL color camera and Intec Model CVM680LCD color monitor shall be provided to assist operator when backing the unit. An additional camera head shall be mounted on the front hose reel.	___	___
A "Loadman" digital scale system model VM300 shall be provided.		
A manhole roller is used when it is necessary to place the sewer hose into the manhole at a distance from the sewer-cleaning machine. It consists of a polyurethane roller and shaft assembly. Three adjustable stops permit the roller placement into the manhole circumference and remain fixed in place.	___	___
A combination hydrant and adjustable spanner wrench cast steel body with screw in heavy-duty handle shall be supplied.	___	___
One Contractor's nozzle " Shamrock" part #140-FUE @ 80GPM/2500PSI		
One Boat Nozzle "ShamrocK" part # 125-FUE @ 80GPM/2500PSI		
One "Enz" nozzle part #KBR 04.100A @ 80GPM/2500PSI		
One "Enz" Roto Plus nozzle part #KBR04150E @ 80GPM?2500PSI		
One "Stoneage" "Warthog" part #WG-1 @ 80GPM/2500PSI		
One lateral line nozzle ½" "Shamrock" part #21-8		
An additional nozzle (No. RRC161FUE) shall be provided.	___	___

A safety cone storage rack shall be provided. ___ ___

2006 CLASS 8 FOUR AXLE CAB & CHASSIS

	YES	NO
a. Chassis load rating shall be 66,000 lbs (GVWR).	___	___
b. Wheel Base shall be 260" w/29" set-forward-front-axle (SFFA)	___	___
c. Cab to Axle (CA) shall be 184" CLEAR	___	___
d. After Frame (AF) 105" OH – From C/L Trunnion.	___	___
e. Turning Radius Maximum (39') Thirty Nine Feet. **No Exceptions.**		

FRAME:

	YES	NO
a. The entire length of the frame rails shall be full depth, including an integral front frame extension of 24".	___	___
b. Frame rail (MINIMUM specs) 110,000 PSI steel, 11.75"x4.00"x.44" approved by body company for single rail installation, have a Section Modulus of 26.3, RBM of 2,890,000 in. lbs. Single frame ONLY.	___	___
c. The section modulus at the engine cut outs shall be at least 26.00, with an RBM of 2,860,000.	___	___
d. There shall be no holes or bolts in the top flange of the frame rails, from the back of the cab to the trunion.	___	___
e. The left frame shall be clear, between the fuel tank and the front hanger of the rear spring assembly.	___	___
f. Cross-members shall not be riveted to the frame rails, however cross-member components may be riveted to form a cross-member assembly.	___	___
g. Shall have a steel front bumper, with two front tow loops or hooks accessible through the bumper SUPPLIED by Body Company.	___	___

CAB AND RELATED EQUIPMENT:

	YES	NO
a. Shall be the OEM Wide/deep cab made with HSS and designed to meet cab pendulum, barrier and sled tests. Must have at least 28 inches of clear		

space between the driver and passenger seat for Work Station.

b. Exterior of the Cab shall be painted with Imron 5000, White # P3029. Chassis rails to be Imron 5000 black.

c. Hood and fenders shall tilt forward to a stable position and allow full and unrestricted access to the engine compartment. To include hood splash shields to eliminate road spray from entering the engine compartment. Hood release must be Inside the cab.

d. When the hood and fenders are tilted forward, the grill shall not come in contact with the plow frame assembly, if so equipped.

e. There shall be a radiator protection screen/stone guard, mounted behind the grill.

f. Driver's side shall be protected by SRS airbag, energy-absorbing steering wheel, collapsible steering column and three-point seat belt to reduce driver injuries in an accident. Three-point safety belts for all occupants.

g. The unit shall be equipped with a Computerized Data Link Driver Information Center using Diagnostic Symbols, Text Descriptions and a Wand to keep drivers and maintenance personnel informed of vehicle systems status. Minimum gauge display of the following:

   1. Engine voltmeter or amp meter

   2. Engine oil pressure gauge.

   3. Tachometer, Speedometer and Hour-meter.

   4. Engine coolant gauge.

   5. High output heater w/fresh air selection.

h. Sun visors - (3): Forward driver and passenger, plus LH side window.. Must overlap to prevent sunlight from leaking into the cab at driver.

i. Factory installed air conditioning. 13 Defroster vents for windshield, Vents and Dash outlets for side windows, 6 Dash outlets & 3 below for cab/floor.

j. Visual and audible low oil pressure / high coolant temperature warning system with Shutdown and Override.

k. Dual, heated 6.5”x14.5” side view mirrors shall be capable of motorizing both up and down as well as in and out. Additionally, the convex section shall be a 5.25”x5.75” spot mirror. Also for RH side vision there shall be an overhead mirror to view RH side of cab and act as a safety view mirror, as well as a RH Fender mirror for complete RH side visibility at a glance. Mirror brackets to incorporate both Breakaway and Fold-back features. ___ ___

l. Shall be equipped with a dual trumpet, under cab air horn. ___ ___

m. Shall be equipped with cowl mounted, electric, intermittent windshield wipers including “one swipe wipe” feature. ___ ___

n. The cab shall include a climate system with replaceable HEPA filter for fulltime air filtration and to keep dust outside of cab. Requires airflow exit valves in doors. ___ ___

o. The cab noise level shall not exceed 70 db(A) inside the cab with windows closed, measured at 65 mph. ___ ___

p. Shall be equipped with left and right egress / ingress assist handles mounted inside the cab so they remain clean and a dry grip. There shall be two (2) inside handles on each side, four (4) total inside the cab. ___ ___

q. Wide anti-slip aluminum steps on fuel tank shall be offset so the view of the steps from the driver’s position shows clearly where the driver will be landing as they exit the cab. To include self-cleaning and a safety light to enhance the visibility of the steps at night. ___ ___

r. Cab suspension to be either air or hydraulic for better ride. Must include at least two (2) full time shock absorbers. ___ ___

s. Double door seals. 1” thick insulated floor mat and increased sound-reducing insulation in walls to reduce noise and vibration for a decreased driver fatigue factor. ___ ___

t. Independent chassis-mounted hood supports to reduce vibration and noise, which is transmitted to the driver cab interior. ___ ___

RADIO HEADER: **YES** **NO**

a. The cab shall be outfitted with a header pocket to accommodate a company radio. The top of the dash shall be outfitted with a radio hold down and all electrical connections so we may opt to use this area for our company radio. The measurements of the radio MINIMUM are as follows: ___ ___

1. Width 7 3/16 inches. ___ ___

2. Length 8 5/16 inches.

3. Thickness 2 $^{1/8}$ inches. ___ ___

b. The Overhead storage bins shall be used for the radio, and shall have doors which may be left on to use for storage, or may be removed and use the area for the radio. ___ ___

c. The Buyer will be responsible for the radio and installation, as long as the chassis vendor supplies the areas as described above. ___ ___

Note: The City of Redmond will loan a Company radio to the successful bidder, as a production aid. ___ ___

d. Radio to be AM/FM with AUTO weather band. ___ ___

e. Speakers are to be in the dashboard and the door from the OEM factory. ___ ___

f. Storage compartments are to cover the entire inside roof area and include three (3) separate compartments. ___ ___

g. Outside Sun Visor with LED Clearance lights. ___ ___

h. Inside cab between the seats shall be the OEM factory supplied and installed mounting plate for the body controls. All electrical wiring to be passed through this area with plugs-in for Body Mounting. This plate and area also must support a center console deck for Computer and all items needed for Center Console Workstation. Workstation supplied by End User. ___ ___

i. Circuit protection provided by semi-automatic reset type II breakers. ___ ___

j. Power windows shall be included. ___ ___

k. Body company will provide a Fleet Minder System, which will include a base station system hardware & software, receiver, antenna. OEM system training is required.

SEATS **YES** **NO**

a. Driver's seat shall be a Cordura covered high back National air ride seat. ___ ___

b. Passenger seat shall be a Cordura covered high back National, non-suspension, toolbox seat. ___ ___

c. Both seats shall have compatible; three point type seat belts with shoulder strap, and retractors. ___ ___

FUEL TANK: **YES** **NO**

a. Shall have 100-gallon fuel capacity with Kevlar fuel lines. ___ ___

b. The tank shall be equipped with two non-skid, raised expanded metal steps, per description under item 3, q (above) ___ ___

c. Shall be mounted on the left frame rail. ___ ___

d. Shall not extend more than 6 inches past the back of the cab ___ ___

ELECTRICAL & LIGHTING SYSTEMS: **YES** **NO**

Note: All chassis lighting shall be conventional lighting including body builder junction box back-of-cab. ___ ___

a. Shall be a 12-volt system, negative ground. 160a alternator Pad mounted. ___ ___

b. Batteries: Shall provide four (4) Gp31 top threaded stud type terminal batteries with 3000 cold cranking amps (CCA) and be maintenance-free. RH under cab with sealed Delco type cable terminals. ___ ___

c. The battery box cover shall be constructed of a bright diamond plating. The batteries shall rest in a tray, where the cover shall be secured by two (2) rubber hold downs and easily accessible. Positive and negative jumper studs with dust cover shall be included. ___ ___

Note: The battery box shall be right side frame rail mounted *including a lockable battery disconnect switch on the box.* ___ ___

d. The battery box shall incorporate the horizontal muffler and air tank combination under the RH side of the cab, and shall consist of entry/exit steps designed for safely entering and exiting as in the LH side spec. ___ ___

e. All battery cables exiting the battery box shall be routed through rubber grommets. ___ ___

f. Ergonomically designed dash shall be wraparound type with easy access to the electrical panels of the truck chassis. Panels shall be clearly marked inside which breakers and wires are for which function. ___ ___

1. Manual reset able type II circuit breakers. ___ ___

2. Back lit, and labeled rocker panel switches, three (3) each. ___ ___

3. First switch will be used by body company for strobe**.** ___ ___

4. Second switch to be used for work light. ___ ___

5. Third switch is powered and not labeled. ___ ___

Note: Bidder must ensure that the control panels on all equipment associated with this purchase, are wired and labeled uniformly. ___ ___

g. Shall be equipped with halogen headlamps 4-lamp system HD. ___ ___

h. Shall have factory-installed LED stop, turn, taillights, marker lights and incandescent back-up lights. ___ ___

Note: Supplier splices into the factory wiring harness is unacceptable and may be grounds for bid rejection. ___ ___

8. Engine: **YES** **NO**

a. A Tier II EPA Compliant 50 State emission certified. Minimum 12.13 Liters. 435 HP @ 1,800RPM, 2,100 Governed. 1,550 lb-ft torque @ 1,200RPM. Minimum 1,000,000 mile SAE B-50 rating. ___ ___

b. Shall be equipped with a minimum 225HP engine brake – silent type EPG. ___ ___

c. Electronic engine controls shall have the following settings: ___ ___

1. Maximum road speed to be 65 mph. ___ ___

2. Cruise control speed to be 60 mph. ___ ___

3. Automatic idle shut down to be 10 minutes. ___ ___

4. Idle, Set 650, Resume 1,000. ___ ___

5. Shall have idle bump up/down feature. ___ ___

d. Engine block heater located by drivers side door: ___ ___

e. PTO shall be transmission mounted by body company. Chassis supplier to

ensure the electrical settings from Allison are correctly on and/or off for the body company use. ___ ___

Note: A driveline hole through the radiator is not acceptable. ___ ___

AIR CLEANER: **YES** **NO**

a. Shall be 16" single element, heavy duty dry-type, with fresh air intake on the side of the hood with hood mounted air intake grille. ___ ___

b. A vacuum, needle gauge restriction indicator shall be mounted on the dash; and it must indicate restriction for the element. This may be part of the driver message center function. ___ ___

c. The air cleaner lid shall be removable for quick and easy access to the air cleaner. Thumbscrews are acceptable. Wet air tank to have automatic moisture ejection system. ___ ___

ENGINE COOLING SYSTEM: **YES** **NO**

a. Shall be equipped with a temperature controlled, air clutch fan drive equipped with override switch located on dash panel. Engine mounted fan ring must be designed to move with the engine torque for increased airflow and cooling performance. ___ ___

b. Radiator to have a de-aeration system and coolant filter. MINIMUM size acceptable for radiator is 1200 square inches. STATE SIZE:_____ ___ ___

c. Antifreeze protection shall be at least –34 °. Extended Life Coolant. Gates EPDM or Blue Strip hoses with constant tension style hose clamps. ___ ___

ENGINE EXHAUST SYSTEM: **YES** **NO**

a. Shall be a single horizontal muffler and vertical pipe. Exhaust system to be recessed into corner of cab so there is no loss of CT due to exhaust. ___ ___

b. The end of the exhaust pipe shall have a 45-degree tip out, positioned 118 inches from the ground to the highest point of the tip out when the truck is empty. ___ ___

TRANSMISSION: **YES** **NO**

a. Shall be an Allison HD4500P RDS Automatic six (6) speed. Transmission temperature gauges to be included. ___ ___

b. Shall have a water-to-oil cooler by Allison, attached to the transmission. ___ ___

Must supply Transynd Synthetic fluid.

STEERING SYSTEM: **YES** **NO**

a. Shall have a dual system, which uses TRW TAS-65 plus a RH assist ram for MAXIMUM turning radius. ___ ___

b. Steering wheel shall be 18 inches and a Safety Sport Design with SRS. ___ ___

b. Steering column shall be fully adjustable tilt/telescope and pedal operated. ___ ___

AXLES AND SUSPENSION: **YES** **NO**

a. Front Axle shall be 20,000 lbs. with Parabolic front springs, Stemco-type seals and grit guards, and heavy-duty double acting shock absorbers with synthetic lube. ___ ___

b. Rear Axle: To be Meritor RT46-160 with 46,000 lb T-Ride or Hendrickson HN462-54" spacing suspension. Gear ratio to allow 65-mph. ___ ___

c. Shall have an air activated rear axle power divider lock with indicator light, and "Cross-locked" Rear axle. Axle must have a separate divider and cross-locker switch with light. ___ ___

d. OEM Tag Axle to be Hendrickson HLUS2 Paralift Ultra, 13,500 lbs. rated and mounted 48" behind C/L rear drive axle; with 255/70R22.5 steel belted radial tires on aluminum hub piloted wheels. With separate air supply from 38CFM compressor. Must automatically raise and lock straight in reverse. Must comply with all WSDOT standards.

WHEELS AND TIRES: **YES** **NO**

a. Front wheels shall be aluminum non polished hub pilot disc with a 4.5" outset for turning radius, with 425/65R 22.5 LRJ steel belted Goodyear tubeless tires tread G286. Must have front fender extensions for wide tires. ___ ___

b. Rear wheels shall be aluminum non polished hub pilot disc with Goodyear (or equal) traction tread 11R22.5 LRG steel belted tires. ___ ___

BRAKE SYSTEM: **YES** **NO**

a. Shall be a Meritor Wabco anti-lock series air braking system (ABS) ___ ___

b. Shall have self-adjusting "S" cam air brakes front and rear, with Gunite slacks. ___ ___

c. Shall have outboard mounted brake drums, with 16.5 x 7-inch front drums ___ ___

and 16.5 X 8.625 inch rear drums.

d. All brake blocks shall be non-asbestos. ___ ___

e. Shall have 30-30 type MGM series rear brake chambers. ___ ___

f. Shall have a minimum 38 C.F.M. air compressors, with intake plumbed to the filtered side of the air cleaner. ___ ___

g. Shall have Bendix model AD-IP air dryer, mounted on the left outside frame rail, directly behind the cab. ___ ___

h. Air tanks shall be mounted below the cab, but not to exceed more than 6 inches past the back of the cab, or be out of the way of the body builder if they are back-of-cab. ___ ___

WARRANTY/OPTIONS

a. Included all standard manufacturers warranties with the bid.

b. Include any optional warranties and their related costs that might benefit the City of Redmond.

c. List additional options and their related costs that might be of interest and a benefit to the City of Redmond.

Approved for Content: _____

Operator

Approved for Content: _____

Division Supervisor

Approved for Content: _____

Fleet